INCENTIVES TO INNOVATION IN DEVELOPMENT GOVERNANCE:

SOME ASPECTS OF INFORMATION SYSTEM DESIGNING

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Summary

Electronic governance can hasten innovation in governments. This innovation can be brought about by information acting as incentive. Information systems (IS) can be designed to achieve that. Development administration (DA) in a country such as India, with its objective of bringing about social and economic uplifting of the deprived groups of rural poor, can employ IS as an innovation engine and information as the incentive. DA is complex; it is an institution embraced by political parties, interest groups, civil services, line departments and tiers of governments. Innovation in this institution is a complex task not comparable to computerizing a private enterprise. Borrowing from the developmental experience and from the experience of computerization in India, this paper develops a model of IS - based on incentives: to generate information, to auction projects based on competitive status of information, to encourage information asymmetry and organizational capture, and to include elements of incomplete contracts, and of distributed control rights. Further, a typology of five IS-design aspects help designing the planning stage of a developmental project/program based on the above incentives. It concludes that such information incentives bring about innovation in governments. Such a model IS can be accepted as normative as well.

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I. Introduction:

Government computerization has so far focused largely on improving the quality of services on offer to the public by reducing the time a department was used to taking in processing a document or otherwise by improving the governmental productivity, by introduction of new services and by decentralization of the governance (Kaul, 1996; Madon & Sahay, 2000). This approach has traced a path of bringing about changes in the sheer size of the government or sometimes in changing piecemeal the government structure. There is another mode, in which innovation in services to the public gets emphasized (Glor, 2001: Armstrong & Ford, 2000/2001). Innovation, Glor argues, depends on three principal factors: individual's motivation to innovation, workplace culture and challenges posed by innovation. Considering the first factor, governmental innovation has the potential of both involving popular groups outside the structure of government and transforming substantially the function of an individual working for the government. This later view endorses deeper innovation in modes of governance, and appears to imply the deeper dependence between structure of government and modes of governance. The former approach has

brought about a mixed result (Heeks, 2000; Bhatnagar & Schware, 2000). Successes in computerization of departmental processes and records-keeping remained mixed up with failures in innovating the mode of governments. However, new roles and the developmental roles of a government, much of what cannot be captured by the departmental or administrative functions, very often remained unaddressed (Warrington, 2000; Smith, 1998). The context of governments have changed (Baker, 2000) the scope and definition of governance, whose legitimacy lies in enhancing and deepening sovereignty and popular authority. Employing information systems (IS) towards this objective of hastening governance while perhaps delimiting the scope of departmental functions of government, thus appears to be a critically important task for the public service (Kling, 2000). Hastening governance through electronic governments is thus an attractive proposal. Government computerization, in general has missed this point (Larson, 1997).

A developing country government built up its legitimacy largely through the developmental functions and necessarily, the IS of such a government needs to address the developmental roles first. There have been attempts therefore to bring innovations into developmental and service-oriented roles through novel IS (Bhatnagar & Schware, 2000; Mohamed & Appalanaidu, 1998; Sanwal, 1987a; Fiszbein & Lowden, 1999). However, these IS projects often failed to satisfy the following criteria: (1) primary focus of IS in government is to bring about innovations in governance; (2) incentives to innovate preferably should be a systemic component of the IS; and (3) information can act as the right incentive. This paper, borrows from field experience of designing new IS for district level developmental administration in India, and presents a hypothetical model, drawing upon Indian experience, of information-incentives based innovation in governance. Major departure of this model, we argue, is in identifying information as an incentive to innovation in government. Received models appear to have been influenced by the paradigm of IS in private sector firms. IS for innovation in government must overcome this dependency.

Background Issues:
Organizational theorists argue that government organization and private business organization share the same foundational principles, and the differences between them are only in degrees (Tirole, 1994). A general theory of organization, based on a science of administration, these authors argue, if developed sufficiently would explain away the differences and the gap between governance and profit-making can be bridged (Bendor & Moe, 1985; Niskanen, 1975). This commonality has acted as a strong paradigm. Developing IS and computerizing the government departments, have most often followed those same (or nearly same) techniques of systems analyses as have been employed by private firm (Mohamed & Appalanaidu, 1998; Sanwal, 1987b; Bhatnagar & Patel, 1988). A rather large number of government computerization projects have simply copied the pre-computerization systems of departmental information exchanges onto the computerized IS; resulting into a static-hold of power groups on the organization. The underlying beliefs of those applying general theories of management information systems or decision support systems to the problems of governance, have been the same as argued by Tirole (1994) that a general theory of decision or of incentives should provide enough ground for explanation of variations. Will of the state are many and are often, at least superficially, incoherent; and the arms of the state too are in contradiction, checking and balancing each other (Wilson, 1989). Nora & Minc (1980) provided a foundation to understanding governance and the computerization of governments on its own terms. Paths of information and generation of information are remarkably different in a developmental

government; and we will attempt to locate the unique paths and sources of information in government by way of comparing a developmental administration (DA) with a private enterprise (PE). Information-based innovation in a DA will be crucially dependent on the loci of these paths and sources.

DA is peculiar to a developing country; it directs, guides, supervises and implements the developmental and/or affirmative projects/schemes of the government, for both the community as well as for special and specific under-privileged groups/sections of people. The ground experience in computerizing the developmental administration of a developing country over nearly last two decades, has failed the expectations raised initially; and such failures embraced more the people who were to be assisted than those who were to administer it. Innovations in the administrative apparatus are urgently required and have assumed an importance that cannot be secured through the earlier approaches to the instrumentality of computerization. This calls for a looking back into a few basic premises of the relation between IS and innovation in governance.

Issues Raised for Consideration:

This relation between IS as the cause and innovations in government as the effect, we propose to describe through two methods. First of these two methods is to discover the salient differences between a government department, in particular a DA, and a private enterprise. These differences would then be utilized in bringing out relevant typologies of information that each system may employ, and also the extent to which information may act as an incentive to systemic innovation. IS of a private enterprise is the point of departure for our model, which commences its incentives designing from this point of departure. The second method consists in defining certain criteria of systemic rationality, that an IS ought to follow, if information has to appear as incentive towards innovation in governance. This systemic criteria of IS-rationality would necessarily be based on individual rationality; in other words, we strive for defining an IS-rationality based on the rationality-considerations of an individual, who engages her/himself with that IS. It is assumed that a government and its subjects/service-holders, have individuals who are 'intendedly rational' (Williamson, 1993), and who therefore can be assisted to act rationally through a prosthetic IS. It is further assumed, that innovation is sustained when the stake-holders act rationally. Therefore, under these conditions, an IS can be so designed as to assist all stake-holders to act rationally, which in turn render a government innovative.

There appears to be a few basic differences between the government departments (GD) and the PE. Such differences are acute if we compare DA involved in poverty alleviation program's with the PE. The DA in India, with a history of five decades, has followed in principle a system called Panchayati Raj Institution (PRI) where the DA ought to be both *for* the people and *by* the people. Such a DA and a GD as well but to a limited extent only, can be differentiated from a PE, in terms of 'information asymmetry' (IA), 'organizational capture' (OC), 'inseparability of policy making from its implementation', 'multidimensional and fuzzy goals', 'incomplete contracts' and 'incomparable levels of performance'.

A rational IS has been defined as a system that provides information necessary for making preferences and choice, and for execution of implementation to all the stakeholders of that system. IS rationality is defined thus on making available different types of information to all agents, to help

them in making choice and preference, and in implementing. The systemic features that allow such rationality, are synonymous to the aspects captured in the typology described above. In other words, informational differences of a DA from a PE when captured through the above types, we argue, do capture simultaneously the innovation-engine of a DA, the latter being made up of individual rationality. A rational IS, which sustains innovation and dynamism in government, could be designed on such system features as information asymmetry (IA), organizational capture (OC), information generation-incentives (GI). Information for sustaining difference would lead to empowering and developing the under-privileged masses, and hence we argue, the IS of DA ought to be engendering IA, and organizational capture (OC) through negotiated incomplete contracts, etc. Organizational innovation is possible, it is argued further, only if these innovation-engendering IA is woven into the DA. It would be important to observe that such a DA is deregulated and it is in harmony with the current program on government liberalization. This above argument is supported by case-examples of DA computerization in India.

Plan:

In the section following we describe necessary concepts on incentives in organization in general - explaining differences between the PE, the GD and the DA in terms of information-incentives and their respective IS. This is followed by a brief discussion in the next section on a few varieties of DA in India, their IS and some of the earlier attempts at computerization. In the next section the Indian DA and its IS are discussed in terms of the above concepts, pointing out, in the following section, the imperatives of a new hypothetical-IS with such normative features as bring about organizational innovation. The conclusion presents a summary of salient points and issues for future research.

II. Information and Incentives:

Government Departments and Private Enterprises

A development administration (DA) and also a government department (GD) have distinct differences with a private enterprise (PE). These differences demand different types of information designing (Leonidas, 2000) for each. A typology of such distinctions, followed by brief discussion on information designing, would help us in locating 'types' of IS which bring about innovations in developmental administration.

It is assumed that information is power (Kling, 2000), and systemic characteristics of an organization would offer incentives to its stake-holders to generate and exchange or transact information. Trade based on market-exchange or a quasi-trade based on gift exchange in information, and the paths of information flows – are therefore important shapers of innovation. With differences between the systems of DA, GD and the PE, there would be variations in the systems of incentives encouraging generation and transaction of information. A comparative picture of systemic variations have been presented in Table-1.

Table 1: Conceptual Difference between GD, DA and PE

	GOVERNMENT DEPARTMENT (GD)	**DEVELOPMENT ADMINISTRATION(DA)**	**PRIVATE ENTERPRISE(PE)**
Nature of Goals	Multiple; Multidimensional Composite Mission	Multiple, may have opposing goals	Often single; Converging to one dimension; Single Mission
Measurability of Goal Attainment	Very difficult; Weightages vary; Fuzzy probability on goal fixing	Very Difficult; Weightages vary; Fuzzy probability on goal fixing; Cannot be summed up	Rather easy; Weightages can be set; Goals can be rendered desirable probabilities
Performance Comparability of Stake-holders	Monopoly- difficult to Benchmark;	Benchmarking not possible	Benchmark;
Heterogeneity of Stakeholders	Future Generation; Political parties, Interest Groups, Elected assembly;	Future Generation; Political parties, Interest Groups, and Voluntary Organization Elected assembly;	Current Profit; Investors and Debt-holders;
Mediation between Stakeholders and Executives	Mediated through same institution; Performance heterogeneity cannot be separated between Policy making and Executive implementation	Mediated through same institution; Performance heterogeneity cannot be separated between Policy making and Executive implementation	Institutional Separation; Performance heterogeneity can be separated at PE Operation
Information Asymmetry (I A) Organizational Capture (OC)	Several types of IA such as between executives and the political principal; OC by interest groups;	Several types of IA such as between executives and the political principal; OC by interest groups; IA is desirable	IA is deliberate, and hastens authority;
Incomplete Contract and Checks & Balances	Several contingencies; distribution of control and rights	Several contingencies; distribution of control and rights; Intra-DA contest	Limited contingency; No checks and balances

Nature of Goals: A GD would have always multiple goals, often in multi-dimensions. In a DA, goals set by one may be in conflict with the goals set by another functionary; as happens when in poverty alleviation programs (PAP) two groups of beneficiaries having conflicting interests are supported by different functionaries. However, a PE would have profit as the central goal. Goals of a DA cannot be integrated; wings/functionaries of a DA, function based on the principle of checks and balances. Information on GD and DA goals are complex. Pursuit of conflicting goals do not allow designing an integrated IS. There need to be several IS, associated with distinct interest groups. Interest grouping of stake-holders would not only violate the organizational hierarchy, but also would bring together some administration employee and an interest group. The latter begets organization capture (OC) - capturing of a DA decision making or implementation activity by an interest-group.

Measurability of incentive-instrumentality: For a GD it is difficult to measure the efficacy of an incentive. Goals are many and weights attached are fuzzy. A DA has goals that are horizontal,

related to coordination at the district level, and cannot be summed up with the transverse goals of satisfying own departments. Information alone appears to be an efficacious incentive. The PE however, can set weights to its goal and therefore to incentives.

Performance Comparability: A GD has a monopoly over what it offers, and a DA too has it while a PE most often would have comparable providers of goods. As a result a PE can benchmark its processes. IS of DA need not be designed for process benchmarking capability, instead inter-IS competition would serve the purpose.

Heterogeneity of Stakeholders: Stakeholders in a PE are the equity-holders and debt-holders. Stakeholders in a GD are political parties, its elected members, the interest/caste/social groups; and for a DA too this is the case, albeit with a difference. A DA being limited to a district draws interest-attentions of local stakeholders, such as the local non-elected political personnel, or the voluntary organization (VO), etc. It may be observed that neither the evaluation norms (such as budget or election) nor the institutional arrangements do provide for an analytical separation between stake-holders and the public servants.

Mediation between Stakeholders and Executives: This analytical and institutional separation between the stakeholders and the executives of a PE enables the PE to own an integrated IS that can reflect heterogeneous demands. In contrast, implementation of development projects are often taken up by a VO or the interest/social groups who are themselves the stake owners. A minister, a stake owner, is also the chief-executive of a department; and the planning process even if separated from the executing agency, is mediated through these ministers or the VO, etc. Lack of analytic-separation, and the heterogeneous demands of separate departments, VO, bureaucracy or the political parties do not allow designing an integrated IS.

Information Asymmetry(IA) and Organization Capture: There are four types of IA in a GD and DA. These are asymmetries owing to the separation between [1] technical knowledge/departments and the administrative knowledge/departments, [2] owners of technological and administrative knowledge and the owners of political interests, [3] interest groups, their VO and the political, administrative apparatus, and finally [4] several interest groups by virtue of the privileged access that one or few group(s) may have over the departmental/technical knowledge. These IA are not deliberate and do engender OC. IS designing revolves around the question whether to allow IA and consequently OC in such a competitive mode as to sustain checks and balances amongst the competing interests, or to reduce the discretionary powers of the GD/DA through ensuring rules-book following. A traditional rule-book of a government was designed to overcome OC in contingencies. An IS of DA can otherwise be deliberately designed for both enhancing IA and the OC.

Incomplete Contract and Checks & Balances: Incentives to a DA employee for performance under contingencies, and for generating enough reliable information on such states of affair would be difficult and costly. As a solution, controls and rights are distributed over several departments. Information adduced under such circumstances are partial, contestable and may not stand a scrutiny on reliability by a contesting department or an interest group. Auctioning or negotiated distribution of budget across projects/programs/departments are often undertaken based on a scenario of

competitive generation of information and contests on that. IS of a DA necessarily has to incorporate this into its designing. Contestability of information generated in one section of a PE is but little, and its IS most often disregard this aspect.

III.   Development Administration and Systems of Information

Indian DA is part of a complex system relating tiers of political groupings, tiers of departments, interest groups and the villages with its target groups of beneficiaries. The structural set up, shown in Fig.1, has the central government at the apex, sharing in a quasi-federal set up powers with the provinces (called 'state'). Each state has several districts having thousands of villages and a few towns, below what we have 'blocks', each having a large number of villages. Many states have elected bodies at the district level called Zila Parishad (ZP), and at a level between the village and a block named Panchayat Samiti, and finally at the level of the village, called Village Panchayat. There are variations on this basic structure across the states.

Fig. 1   A Simplified Schematic Relations of DA (DA is in box below)
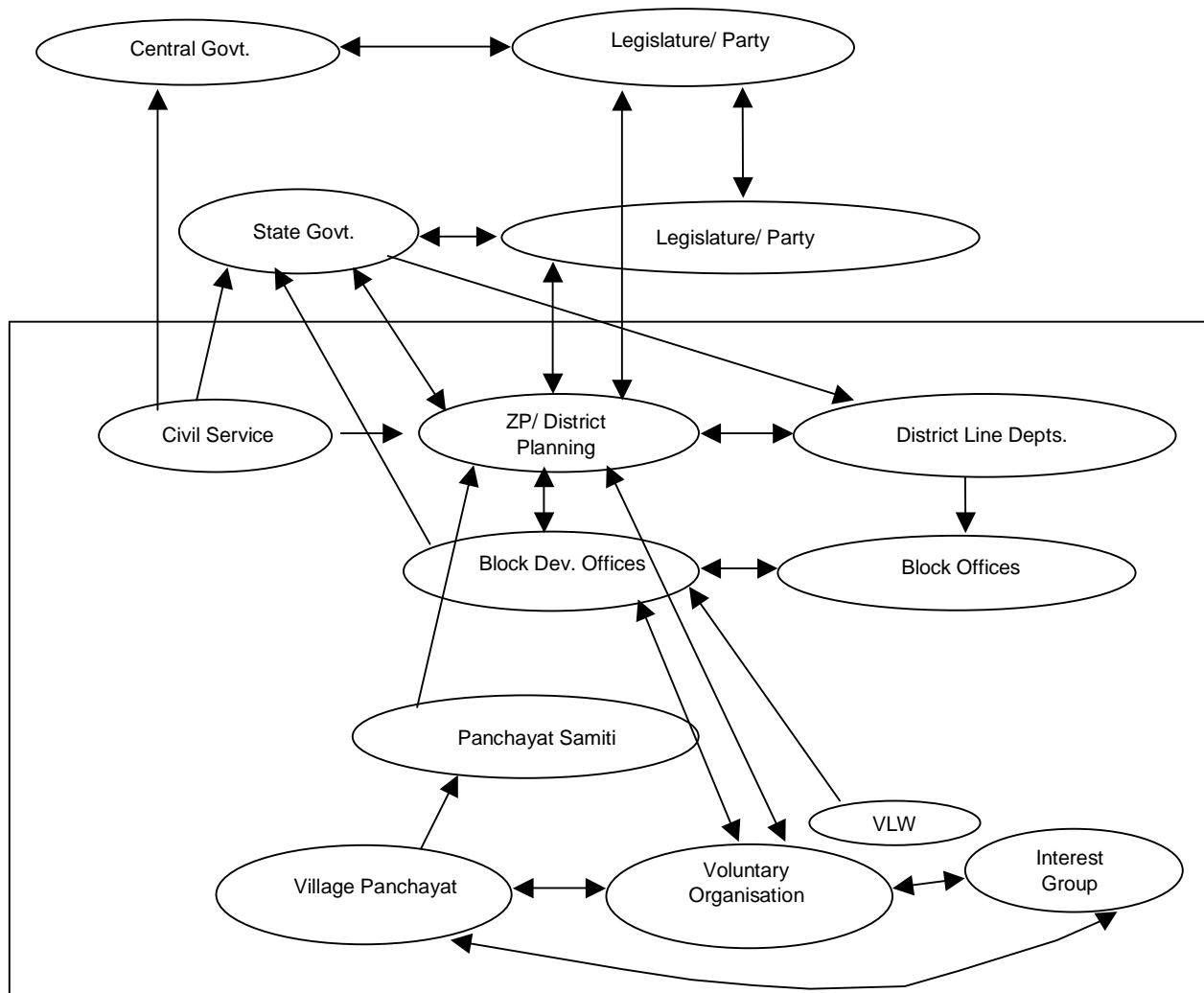
A large body of literature has devoted itself to the political, administrative, developmental and program-review aspects of the DA (Ray, 1985; Kaviraj, 1984; Sanwal,1987b; Goldsmith, 1988; Slater & Watson, 1989; Chandrasekhar, 1984; Misra, 1980; NIRD, 1985). A tacit line of thinking and of organizing the developmental work has attempted a separation between the planning and its implementation. Planning process at all these levels however, always involved the executive departments in allocative decisions and, at lower levels the implementation often merged with the planning. The district planning body, chaired by the elected ZP president with the civil service bureaucrat as the administrative head, has representations from all concerned executive departments and also the elected members from the Panchayat Samitis. Clearly the decision process has been captured by the implementing executive at all the levels. In fact a department is headed by an elected party-member, the ZP president too is often from the same party.

Planning involves three sectors: infrastructure, welfare and development. We limit our discussion to the developmental initiatives. Developmental activity was known in early years as CD (Community development) having thrust on community development, implementation being organized around the Block-level. Spatial approach with emphases on community/integrated information of CD was replaced later by sectorial programs on poverty alleviation, emphasizing information on intra-community differentiation. The block now left with little power, the line departments in charge of the sectors, took over entire implementation and most of the planning. A developmental program is functionally desegregated along the functional charters of line departments, and targets and allocations are routed through the departments based on information relating to differentiation. A body, the DRDA (District Rural Development Authority), set up to coordinate the line functions and chaired by the civil servant and represented by all the line departments, could not decisively integrate the developmental programs already separated along the functional lines. A large number of IS were developed, primarily by the civil servants, to integrate the functionally laid out programmatic activities (Sanwal, 1987a, 1987b).

Two models came up (Chandrasekhar, 1984) to overcome the failures in DRDA coordination through infusing political decision making at the levels of district and below. The general trend has been to induct the elected ZP president, elected members to both the central and state governments, representative elected members from the level of Panchayat Samiti (below the district but above village) as the political and executive side representation; and the civil servant (reporting to central government through the state), the district heads of the line departments, representative from the block level, as the departmental representation - into an omnibus body of district level planning. Bargaining and negotiation on size of funding and on who were to be the beneficiary, substituted the earlier information on 'community' with that on organized 'interest groups' (Olson, 1965).

The lowest tier of administration is at the block, who sends several (about 24 for an ordinary block) Village-level-Workers (VLW) to the villages, for surveying families, selecting beneficiaries, and monitoring the progress of assistance utilization. There are extension officials as well. The DRDA/ZP level employs several technical experts such as economist, and the district level line-departmental officers are attached to it (Fig. 1 represents a schematic representation of the DA). The VLW are the only source of information, required for planning at all the higher levels, or required for monitoring of the programs. Ordinarily VLW report to the BDO (Block Development Officer)

and do not have an incentive to generate information. The VO at the village, or the linkages that the elected representatives at central/state levels forge with the village level interest groups - are the only other sources of information generation. The line departments generate information, requiring expertise to generate, on beyond-village entity (such as on watershed), or on the feasibility of undertaking a project for the development, or on the departmental targets (such as on number of bore wells). This group too do not have an incentive to generate competitive information or more information. Parallel to these line executives, information on interest groups are generated by the elected representatives, who in order not to lose the reelection, would nurture powerful interest groups at the villages and above.

The civil servant collects information, cross-checked against the above sources, for retention of the authority and for planning, from the non-developmental wings of administration under her/his control. There are no separate feedback loops on implementation, or on monitoring benefits to the beneficiaries, or on social changes, in parallel to any of the above channels of information. The above channels therefore are supposed to monitor themselves leading to collusions between departments, or between VO/elected members, reducing further the possibility of generation of information on monitoring. The planning stage information status allows adverse selection (private information with a party on exogenous parameters) and moral hazard (endogenous choice of a party remain private information), and is based otherwise on incentives not encouraging if not discouraging generation of information.

'Quasi-innovations' in DA engendered by factors not resident within the government such as complex negotiations amongst agencies were not the result of governmental action related to paths of information. We are therefore looking for conditions under which governments (and its IS) can act as the agency of innovation and dynamism.

IV.   Information Systems in Indian Development Administration

A large number of departmental IS designed as MIS or a DSS, were primarily meant for retaining the control of the bureaucratic authority over the departmental subordinates as also in enhancing the ability of the authority to probe deeper into the organization (Adkins, 1988; Gupta, 1996; Nora & Minc, 1980). A DA however, is an institution. A detailed information-structure analyses of DA, more particularly of block level planning in India limit itself to a demand for clear articulation of project specifics, which alone can clearly delineate the hidden information structure. Its short-term aim is to bring about social affirmative changes, and its long-term aim is to bring in grass-root democracy, or to "reinvent" the governance with the grass-root people. An IS of a DA is burdened further by two information-features:[1] Spatial governance and spatial planning have to be implemented through sectoral affirmative projects/schemes for an interest group or an underprivileged group, settled locally; and [2] an anti-poverty program, such as the IRDP, with objectives of systemic changes has to be implemented through line-departmental functional projects, or through VO initiated local projects.

The moot question is whether through a single IS these above integration of functional projects into a system, or several locales into a spatiality can be achieved! The answer appears to be

to have several IS, woven into a system of checks and balances. Such IS are mostly jointly owned by interest groups, employees, technical knowledge-holders, VO, etc. Governance and DA authority in that case are the same, who as an auctioneer, sets up incentives for engendering several IS and of competition/collusion amongst them, and also who arbitrates over disputes, who awards funds, and who thus keep the organizational system of developmental government in a dynamism. Question is, can there be an incentive other than information!

The CRISP (Computerized Rural Information System Project) of earlier IRDP, and other GD/DA computerization attempted capturing the circuits of hitherto existing codified flows of information, both horizontal and vertical, on Windows; and none could satisfy demands of designing new incentives in the IS. An IS must, we may argue, provide information as incentives towards bringing about organizational and institutional innovation. A singular case at the district Bardhaman of the state West Bengal has used, only recently, the Browser technology to open up the possibility of unlimited generation, access and tie-ups in information. This is potentially capable of allowing networking/collusion, limited competition for information, information as incentive for developing islands of unique interest-group IS, grass-root use of information.

V. Information for Development: A Typology

Generation, differentiation and paths of information then can act synergistically to give a fillip to the organizational innovation. The comparative analysis between the IS in PE and in DA, and the ground conditions obtaining in Indian DA, provide us with a set of conditions that an IS must abide by in order that generation, differentiation and paths of information act toward organizational innovation. We develop upon a typology of desirable aspects that such a system of 'several IS' need to have. Basic objective of the schema is to secure information as an incentive to undertake change and it is built upon the Indian experience These are in five dimensions, and the system of IS needs to be designed along these five dimensions:

- *Generation and Incentives (GI)*
- *Access (AS)*
- *Controllership and Endogeneity (CE)*
- *Auction and Comparison (AC), and*
- *Contingency (CY).*

A brief description of these elements would be followed by an hypothetical example of a DA, having several IS with distributed ownerships. This DA is attempting both innovation and the integration between aspects of spatiality/locality and program/projects. The overall system behaves like a singular IS, although there are several IS, owned by several alliances. Such a system is defensible on several counts: a) it hastens governance; b) it provides information as incentives to innovation in government; and c) information is generated internal to the developmental activities by rational agencies.

Generation and Incentives (GI), refers to distributed incentives unique to the organizational situation that promote generation of information. Information helps making better choice, legitimize this choice against contrary demands. *Access (AS)*, refers to the distributed and differentiated rights

of access and incentives to access information generated at other sites or in other IS. *Controllership and Endogeneity (CE)*, refers to rights and incentives to make endogenous choices/implementation, information on which may not be available to the common domain; and *CE* also refers to controllership on information flow and distribution such that *in-situ* information user domain remain restricted. *Auction and Comparison (AC)*, refers to rights and incentives to compare and differentiate the information offered by competing parties/projects, and also call for auction either the valuable information generated by oneself or to ask for bids by competitors where each party would offer information generated by itself. Finally, *Contingency (CY)*, refers to rights and incentives to generate information that is additional to and over and above of what is demanded by the four types referred to above, and this *CY* refers to information required to work in a contingency.

This typology can now be used to develop an IS. We provide an example of the planning stage. Table-2 refers to four levels or types of IS owners: the village, the block, the line departments and the ZP. A level, such as of line departments, can have several IS, each owned by a single department. Similarly, a level such as a village, can have several competing interest groups (IG), each of whom own an IS in alliance with one or several of the VO, employees of line departments or of the ZP, etc. Again, each block has an IS that competes and cooperates with IS owned by a few others. In electronic governance stakeholders develop IS and own it on a non-excludable basis (Nelson & Romer, 2000). These IS transact information as though it were being exchanged in an auction-based market although at the same time these IS follow such rules and acknowledge such obligations as are often obtained in a large decentralized open organization. A pure auction-driven market of information would have resulted in several independent small IS, and the government would have ceased virtually. An organization alone, with semi-autonomous IS, would have seen a departmental IS only. Our conceptualization does not allow the death to department or a reign of market alone; it provides for a system of interlinked IS, who transacts in information on grounds of both self-interest and of social obligation.

Table 2: Information characteristics of IS required for innovation in DA
(Planning Stage Only; Examples of Rights)

	GENERATION & INCENTIVES (GI)	ACCESS (AS)	CONTROLLERSHIP & ENDOGENEITY (CE)	AUCTION & COMPARISON (AC)	CONTINGENCY (CY)
Village	Provided for VLW and for the IG by VP	Rights exercised on ZP information system by IG and VO	Exercised by VP and IG	Conducted by VP, on demands from IG, VLW, and VO	Rights exercised by the ZP
Block	For VLW	Rights against ZP	Rights on developmental program selection		
Line Department	Given, on projects	On ZP on program selection	Rights on selection of projects		Rights to exercise
Zila Parishad (ZP)	Provides for the block	Rights on information from block	Rights through default situation of contingency	Rights to select block programs	Rights to exercise

Logo: VLW – village level workers; IG – interest group; VO – voluntary organization;
ZP – Zila parishad; VP – village panchayat; PS – panchayat samiti
Note: A VP can be substituted by PS (Panchayat Samiti)

A hypothetical situation of village panchayat auctioning projects based on lowest demand on money and best offer of information, interest groups/VO generate profuse information on competing projects. The VLW, though part of the line department, has now career/monetary incentives to generate profuse information. Moral hazards, adverse selection have been taken care of. The scheme encourages OC and IA, and builds a system at the level of village which through distribution of controls and rights, checks and balances and incomplete contract, builds up a village government based on information generation, comparison and competition. The basic principles of democratic governance, such as scope of rational informational behavior by each stake-holder, checks and balances between competing informational claims, balancing social obligations with private interests, etc., have been retained in this scheme of electronic governance.

The block level integrates the projects at program level and at the spatial level (such as village water-development projects are integrated at the watershed level), and the block keeps with itself the endogenous information without sharing necessarily with the ZP, or with the state government. The line departments keeping endogenous with itself the information on projects, provide incentives that help generate profuse information on competing projects, and allows contingency in selection, implementation and in evaluation. The ZP is designed more as the pivot of governance than as providing government for the district. ZP assumes power to auction, calling for competing information bids on projects (Alam & Pacher, 2000). IS of ZP integrates the projects and locales for the district as a whole. The functions of IS at these four levels, for monitoring and for evaluation are not very different from this schematic representation. This schema provides information as incentives for bringing about innovation in electronic governance and in district DA.

VI. Conclusion

Development and empowerment of an interest group or a destitute section of the population is considered to be an integral part of the development of the village and its community as a whole. The proposed IS while hypothetical, is built upon informational empowerment and it assumes that much of district power has been transferred to the tiers below through IS-led reengineering. It goes beyond decentralization paradigm and assumes a free environment allowing auctioning. Future research will have to address: [1] IS design issues that actively borrows from recent research in theories of organization, especially information as incentives and agency of innovation; [2] information asymmetry and organizational capture as desirable goals of IS designing; [3] incorporation of competitive generation of information, and auctioning of developmental projects based on information profligacy as defining parameters of IS; [4] contingency issues, checks and balances, distributed control rights, and incomplete contract designing as issues of IS; and [5] institutional as well as organizational innovation through designing of multiple IS bound together in a single framework of governance.

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Words: 5078

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